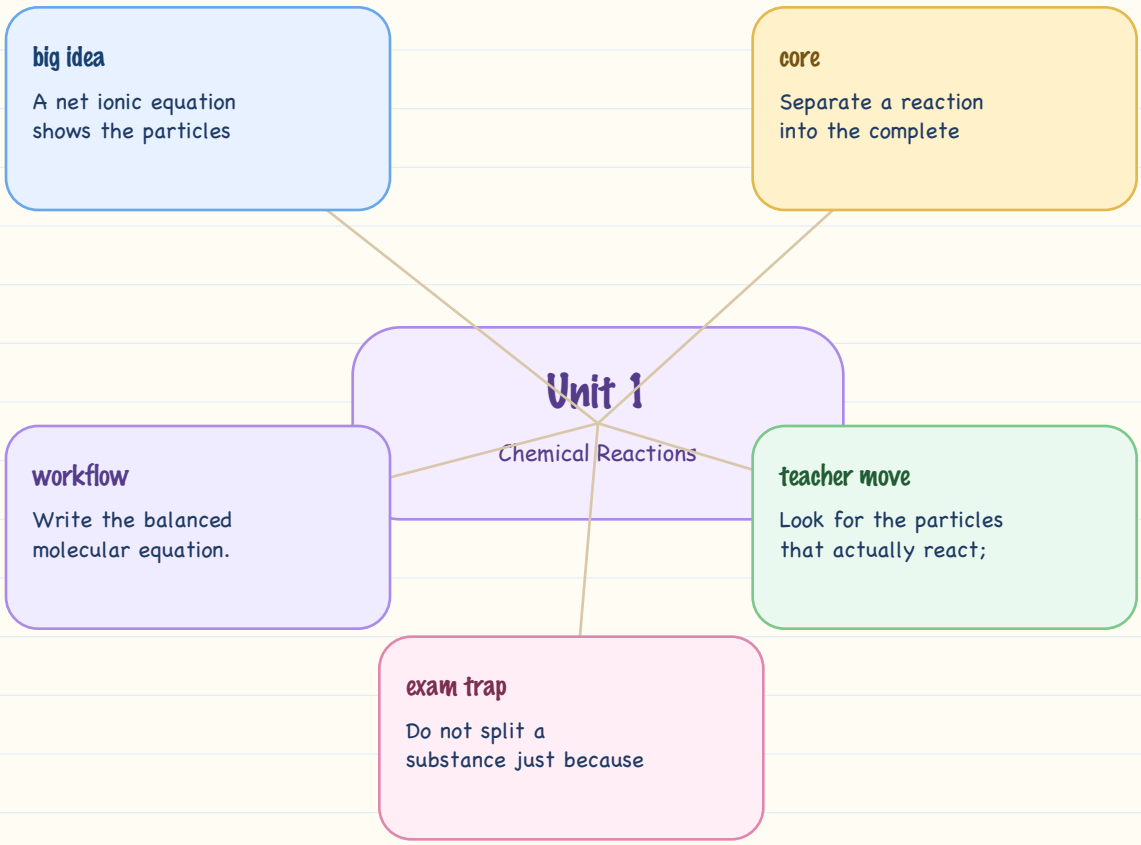
Unit 1 Visual Notebook

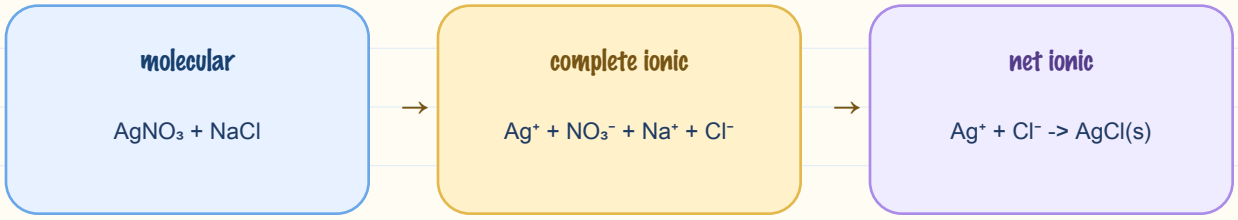
Ionic Reactions and Net Ionic Equations

DISTILLED FROM VIDEO

7 lessons, P7–P13. Diagrams summarize the same source-locked workflows.



Visual Strategy



Rule

- Split only aqueous strong electrolytes.
- Cancel spectator ions after the complete ionic equation.
- Check atoms and charge at the end.

Cornell Notes

cue

Core idea

Core idea

- Separate a reaction into the complete molecular equation, the complete ionic equation, and the net ionic equation.
- Split only substances that are both soluble in water and strongly ionized in solution.
- Keep precipitates, gases, water, weak electrolytes, and context-dependent solids in formula form.

cue

Workflow

Workflow

- Write the balanced molecular equation.
- Decide what can split into free ions in water.
- Write the complete ionic equation.
- Cancel spectator ions.

cue

Teacher moves

Teacher moves

- Look for the particles that actually react; those become the net ionic equation.
- Cancel spectator ions only after writing the complete ionic equation.
- Decide splitting from the actual aqueous context, not from habit.
- For slightly soluble substances, use the problem wording to decide whether to split.

Cornell Notes

cue

Common traps

Common traps

- Do not split a substance just because it is an electrolyte in another context.
- Concentrated sulfuric acid is treated differently from dilute sulfuric acid in the source videos.
- For slightly soluble hydroxides, pay attention to whether the problem says clear solution, suspension, product, or reactant.
- A physical ionization equation is not the same thing as a chemical net ionic equation.

Example Cards

example 1

Unit 1 distilled workflow, P7-P13

Net ionic equation: silver nitrate + sodium chloride

1. Molecular: $AgNO_3(aq) + NaCl(aq) \rightarrow AgCl(s) + NaNO_3(aq)$.
2. Split only aqueous strong electrolytes: $Ag^+ + NO_3^- + Na^+ + Cl^- \rightarrow AgCl(s) + Na^+ + NO_3^-$.
3. Cancel spectator ions Na^+ and NO_3^-.
4. Net ionic: $Ag^+(aq) + Cl^-(aq) \rightarrow AgCl(s)$.

Answer: $Ag^+(aq) + Cl^-(aq) \rightarrow AgCl(s)$

example 2

Unit 1 teacher move: split from context

Neutralization: acid + hydroxide

1. For a strong acid and soluble hydroxide, split the aqueous ions.
2. H^+ and OH^- are the changing particles.
3. Spectator ions stay unchanged and cancel.
4. Net ionic: $H^+(aq) + OH^-(aq) \rightarrow H_2O(l)$.

Answer: $H^+(aq) + OH^-(aq) \rightarrow H_2O(l)$